

Patent Claims

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1. A nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of

- (a) nucleic acid sequences encoding the amino acid sequence depicted in SEQ ID No. 9 or in SEQ ID No. 14;
- (b) nucleic acid sequences as depicted in SEQ ID No. 8 or SEQ ID No. 13;
- (c) nucleic acid sequences, the complementary sequence of which hybridizes to the sequences mentioned in (a) or (b);  
and
- (d) nucleic acid sequences deviating from the sequences mentioned in (c) on account of the degeneracy of the genetic code,

wherein the nucleic acid molecule encodes a protein, the reduction and/or inactivation of which in animals results in that the bones except for the skull bones become longer.

- 2. The nucleic acid molecule according to claim 1, which is genomic DNA.
- 3. The nucleic acid molecule according to claim 1, which is a cDNA molecule.
- 4. The nucleic acid molecule according to claim 1, which is an RNA molecule.
- 5. A vector containing a nucleic acid molecule according to any one of claims 1 to 3.

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6. The vector according to claim 5, wherein the nucleic acid molecule is linked to regulatory elements which ensure the expression of the nucleic acid molecule in prokaryotic or eukaryotic cells.

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7. ~~A host cell transformed by a nucleic acid molecule according to any one of claims 1 to 4 or a vector according to claim 5 or 6.~~

8. A method for preparing a protein which is encoded by a nucleic acid molecule according to claim 1, wherein a host cell according to claim 7 is cultured under conditions permitting the expression of the protein and the protein is recovered from the cells and/or the culture medium.

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9. ~~A protein encoded by a nucleic acid molecule according to claim 1 or obtainable by the method of claim 8.~~

10. An antibody against the protein of claim 9.

11. A nucleic acid molecule which is at least 15 nucleotides long and specifically hybridizes to a nucleic acid molecule according to claim 1.

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12. ~~A diagnostic composition containing a nucleic acid molecule according to any one of claims 1 to 4, a vector according to claim 5 or 6, a protein according to claim 9, an antibody according to claim 10 and/or a nucleic acid molecule according to claim 11.~~

13. A pharmaceutical composition containing a nucleic acid molecule according to any one of claims 1 to 4, a vector according to claim 5 or 6, a protein according to claim 9, an antibody according to claim 10 and/or a nucleic acid molecule according to claim 11 and optionally a pharmaceutically acceptable carrier.

14. A method for preparing a transgenic non-human animal, wherein a nucleic acid molecule according to claim 1 or a vector according to claim 5 or 6 is inserted

into a germ cell, an embryonic cell, an egg cell, or a cell derived therefrom, and a transgenic animal is produced from the thus transformed cell.

15. A transgenic, non-human animal which is transformed with a nucleic acid molecule according to claim 1 or a vector according to claim 5 or 6 or which is obtainable by a method according to claim 14.
16. A transgenic non-human animal, wherein the expression of a protein according to claim 9 in the cells is lower than in cells of a corresponding wildtype animal.
17. The transgenic non-human animal according to claim 16, wherein at least one genomic copy of a gene which corresponds to a nucleic acid molecule according to claim 1, is inactivated.
18. The transgenic animal according to any one of claims 15 to 17, which is a non-human mammal.
19. The transgenic animal according to claim 18 which is a mouse.

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